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Via Electronic Mail

Public Comments of Environment Northeast concerning Emergency Regulations 225 CMR 16.00 et seq., Alternative Energy Portfolio Standard

February 9, 2009

Environment Northeast ("ENE") appreciates the opportunity to submit these comments in response to the Department of Energy Resources' ("DOER" or the "Department") issuance of emergency regulations 225 CMR 16.00 et seq. concerning the Alternative Energy Portfolio Standard ("APS") contained in the Green Communities Act ("GCA" or "the Act"). ENE is a regional non-profit organization that researches and advocates innovative environmental policies for New England and eastern Canada. ENE is at the forefront of state, provincial, and regional efforts to combat global warming with solutions that promote clean energy, clean air, healthy forests, and a sustainable economy.

ENE spent considerable time working with a wide variety of policymakers and stakeholders during the legislative process in helping to develop the APS language and believes that it can be, if properly implemented, a useful policy tool in developing low-carbon, efficient energy resources.

ENE applauds Massachusetts' leadership in enacting *An Act Relative to Green Communities*. The Patrick Administration has been a profound leader on clean energy and global warming policy and is to be commended for swift implementation of the APS and other portions of the Act.

At the outset, ENE believes the Department can best serve the goals of the Green Communities Act and the Alternative Energy Portfolio Standard by treating the APS as a market based incentive where all the technologies in the APS compete based on environmental performance. ENE is pleased to see that the emergency regulations carry this spirit by requiring all qualifying technologies to compete within one "bin" of resources to achieve the percentage requirement set by the Department. The APS should be designed to drive innovation and commercialization of technologies with superior climate and environmental performance, and should not be used to subsidize technologies with average performance which are commercially and widely available today. In addition to meeting the goals of the Green Communities Act, aggressive limits will also help the Commonwealth achieve the economy-wide emissions targets of the Global Warming Solutions Act ("GWSA").

ENE believes that the emergency regulations provide an excellent framework for the APS. In this context, there are several ways in which the draft can be significantly improved in its final form.

First, the regulations should contain a provision that explicitly requires continuous improvement for all technologies and emission performance standards as required by statute.[1] ENE suggests the following language be inserted as a new sub-section 16.05(1)(f):

"At least once every two years the Department shall review and update all eligibility criteria for APS Alternative Generation Units, including but not limited to emissions performance standards and the net carbon dioxide emissions rate, to strengthen, as appropriate, as technology improvements occur. Any strengthened revision(s) to the Eligibility Criteria shall apply to all Generation Units that receive a Statement of Qualifications on or after the date of the revision(s)."

Second, there should be a time cut-off for how long technologies qualify, *e.g.,* no longer than 10 years of eligibility for a project. ENE suggests the following language be inserted as a new sub-section 16.05(1)(g):

"Any APS Alternative Generation Unit receiving a Statement of Qualification from the Department shall be eligible to receive APS Alternative Generation Attributes for a period not longer than 10 years from the Commercial Operation Date."

Only new and incremental resources should qualify to avoid having ratepayers pay a subsidy for no incremental environmental benefit. The emergency regulations appear to limit APS participation to new technologies by requiring a Commercial Operation Date of on or after January 1, 2008. *See* 225 CMR 16.05(1)(b). ENE encourages the Department to preserve and clarify this requirement in the final regulations and/or in its Statement of Qualification application materials. *See* 225 CMR 16.06.

ENE commends the Department for proposing a single, annual APS percentage rate that applies to all APS-qualified technologies. This approach should be preserved in the final regulations.

Emissions

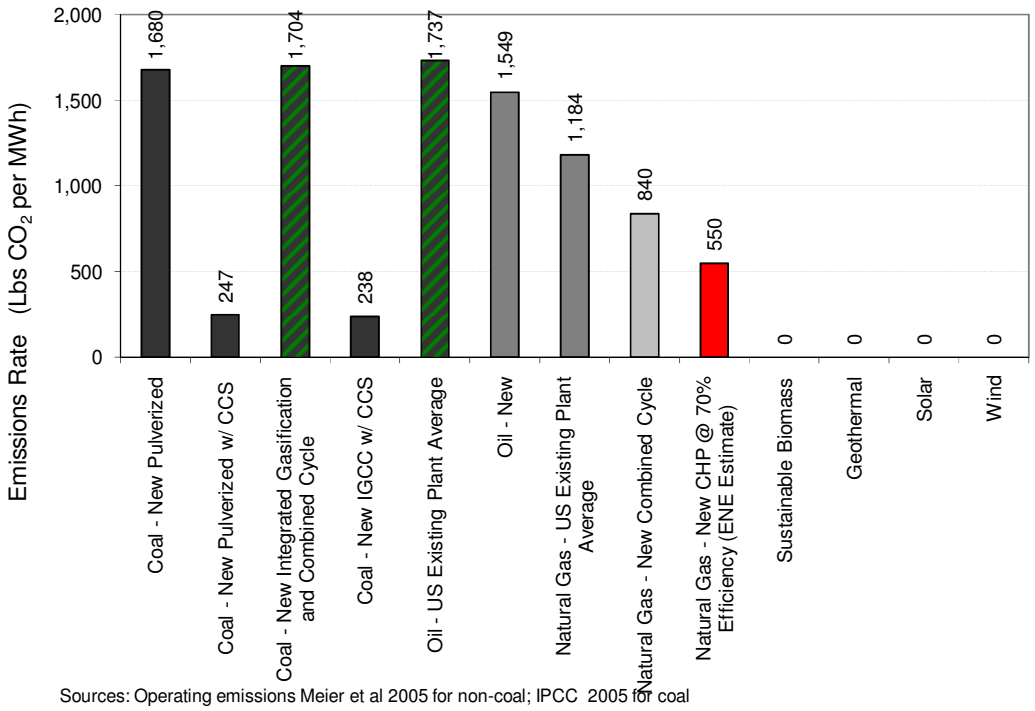
The language of the Green Communities Act requires the Department, in consultation with DEP, to set "a net carbon dioxide emissions rate not to exceed the average emissions rate of existing natural gas plants in the commonwealth."[2] Because the rate is "not to exceed" the existing gas plant rate, the Department would be well within its statutory duties if it set a CO_2 limit as low as 0 lbs per MWh. Because the goal of this public subsidy should be for the APS to encourage superior climate performance such as that available by highly efficient CHP, ENE believes that setting the rate at zero would be impractical. Based on our initial review, ENE asserts that the right limit is approximately 550 lbs per MWh, including useful thermal output. This would ensure that the Commonwealth is promoting technologies with immediate and proven climate benefits at a level at which one of the technologies named in the APS statute (*i.e.*, efficient CHP) can achieve today. Therefore, we would advise the Department to adjust its proposed 890 lbs/MWh downward to 550 lbs/MWh. *See* 225 CMR 16.05(1)(e).

The Act places an affirmative requirement that emissions performance standards be "consistent with the commonwealth's environmental goals, including, but not limited to, the reduction of

[1] Mass. Gen. Laws, c. 125A § 11F ½ (b).
[2] Mass. Gen. Laws, c.25A § 11F ½ (b)(2).

greenhouse gas emissions."[3] The GCA establishes "renewable and alternative energy and energy efficiency goals" including 80% efficiency for CHP systems by 2020.[4] Moreover, the GWSA establishes economy-wide limits to greenhouse gas emissions including 10-25% below 1990 levels by 2020 and 80% below 1990 levels by 2050.[5] Thus, the Department should set an APS CO_2 emissions limit of no more than 550 lbs/MWh for all APS technologies to be consistent with Commonwealth's environmental and GHG reduction goals and can be met by existing APS technologies such as highly efficient CHP.

The following chart depicts CO2 emissions rates from different fuels and generating plants.



Sources: Operating emissions Meier et al 2005 for non-coal; IPCC 2005 for coal

Combined Heat & Power (CHP)

As a general matter, to qualify for the APS, CHP projects must demonstrate a high efficiency level to ensure energy efficiency benefits.[6] This is likely to force projects to follow thermal, not

[3] Mass. Gen. Laws, c. 25A §11F ½ (b)(1).
[4] *See* c. 169 of the Act of 2008 § 116(a).
[5] Mass. Gen. Laws, c. 21N § 3(b); § 4(a).
[6] ENE plans to supplement its comments relating to CHP to address the recent DOER revisions to the methodology for calculating APS attributes as set out in the Department's February 5, 2009 Memo, "Treatment Of Combined Heat And Power (CHP) Under The Massachusetts APS Program."

electric, load (*i.e.*, projects will need to be sized based on thermal load). The APS should reward efficient CHP projects that serve both thermal and electric loads, but should not favor CHP in those instances when the grid and a high efficiency furnace/chiller are a more suitable option.

ENE commends the Department for requiring that the Useful Thermal Load be delivered to an end-use in Massachusetts. *See* 225 CMR 16.05(1)(a)(2)(d). This ensures that to ensure that Massachusetts ratepayers receive the maximum benefit from the standard. The Department should retain this provision in its final regulations.

Gasification with Carbon Capture and Permanent Storage (Gasification w/CCPS)

Gasification with carbon capture and permanent storage is a potentially promising technology; however, the Department should acknowledge that it is, at present, limited in two fundamental ways. First, there is a practical constraint on the rate at which gasification facilities can be designed, permitted, and built. Secondly, there is a similar constraint on the rate at which carbon capture and storage can be permitted and built.

We commend the Department for reserving the definition of Capture and [Permanent] Sequestration for the present, and believe that this will be an important future decision. The Department should not issue an SQ or APS Alternative Generation Attributes to gasification projects until this definition has been finalized.

As the Department considers this issue, ENE provides the following thoughts. Gasification with carbon capture and permanent sequestration ("w/CCPS") presents perhaps the greatest challenge to the design and implementation of a successful APS. In addition to setting strict and workable regulations in Massachusetts, gasification w/CCPS requires working with upstream states (and perhaps countries) to ensure that sequestration is actual, permanent and verifiable. As indicated in the Act, the emissions from gasification w/CCPS projects must "include all emissions related to combustion, gasification, fuel processing and sequestration, whether or not such activities occur at the alternative generating source or at another location."[7] Ensuring statutory compliance will require a protocol to measure emissions in every step of the process. Moreover, given the fact that much of this activity may take place outside Massachusetts, all measurement and verification should be reviewed and certified by an independent third-party verifier who has been qualified and approved by the Department.

The Act is very clear that carbon must be permanently stored: "gasification with capture and permanent sequestration of carbon dioxide" (emphasis supplied).[8] Ensuring permanent storage is a significant hurdle and much work is being done in this area that should be examined in the rulemaking. In particular, there should be a long-term monitoring plan and an insurance mechanism to pay for any damages associated with releases and to offset any CO_2 emissions in the future.

The injection of carbon dioxide into geologic formations requires a state or federal permit under the Safe Drinking Water Act and potentially other state or federal permits. EPA has issued draft rules related to this issue;[9] however, in order for a facility to qualify, it must be located in a state

[7] Mass. Gen. Laws, c.25A § 11F ½ (b)(2).
[8] Mass. Gen. Laws, c.25A § 11F ½ (a).
[9] http://www.epa.gov/safewater/uic/wells_sequestration.html

where regulations have been completed.[10] Because of the challenges associated with permanent CO_2 storage, ENE believes that the Department should consider requiring the host state (*i.e.*, the state where the CO_2 will be stored) to sign a memorandum of understanding with the Commonwealth. At a minimum, any such MOU must (1) ensure full sharing of data on the facility where the CO_2 will be stored, and (2) certify that any permit violations can lead to immediate disqualification from the Massachusetts APS. Cooperation with host-state regulators will be essential to ensure that CO_2 sequestration is permanent and complies with the GCA.

As a matter of policy, Massachusetts should not be spending money incenting a technology that negatively impacts the environment of other states. To that end, there should be a review of each proposed project using environmental impact information that ensures that the project protects human health and safety, protects ecosystems, and protects underground sources of drinking water, and other natural resources. Massachusetts should also solicit feedback on the project from stakeholders in the host state by requiring that the project developer run notices in local papers describing the project and inviting comments to be sent to DOER prior to project approval.

As other jurisdictions begin to tackle CCPS, the Department should examine regulations and information from other states during the rulemaking process. A list of some resources that should be examined is below:

- EPA Draft Rule: Proposed rule for Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO_2) Geologic Sequestration (GS) Wells, http://www.epa.gov/safewater/uic/wells_sequestration.html
- Regulations from the State of Washington:
  Chapter 173-407 WAC, Carbon Dioxide Mitigation Program for Fossil-Fueled Thermal Electric Generating Facilities
  http://www.ecy.wa.gov/biblio/wac173407.html and
  Chapter 173-218 WAC, Underground Injection Control Program
  http://www.ecy.wa.gov/biblio/wac173218.html
- World Resources Institute CCS Guidelines (to be released in October of this year):
  http://www.wri.org/project/carbon-capture-sequestration

Flywheel Energy Storage

ENE believes that developers and utilities seeking APS qualification for flywheel energy storage should be asked to provide information on the potential for this technology and its characteristics. We note also that this technology does not produce any energy as it is an energy storage device. As a result, its eligibility and treatment within the APS requires more discussion and an examination of benefits, including avoided peaking capacity and emissions.

Because its economic and environmental benefits are likely to be limited, flywheel energy storage eligibility for the APS should be limited as well. At the outset, ENE notes that strict reading of the Act suggests that flywheel energy storage may not even qualify for the APS. Section 11F ½

[10] ENE understands that only the state of Washington has completed such a rulemaking, and Wyoming is the only state actively developing rules. In light of EPA's final rule, the Washington and Wyoming rules may need to be updated.

requires retail supplies to provide a minimum percentage of sales "from alternative energy generating sources." Flywheel energy storage systems, as its names suggests, act as a battery, storing energy that has been generated elsewhere and is thus, arguably, not an "energy generating source."

Nevertheless, flywheel systems can carry environmental and economic benefits. Storing energy during off-peak periods for use during peak times can reduce strain on the grid and lower wholesale electricity prices. Environmental benefits will vary depending on the source of energy they use for charging and the plants they offset when supplying energy. To the extent flywheels can store power generated from low-emissions sources (*e.g.,* renewables, efficient CHP), there may be climate and other environmental benefits. As a result, the Department should recognize the limitations of flywheels as an alternative energy resource and should limit flywheel energy storage in the APS to only those applications that (a) produce energy only during peak periods and consume it only during off-peak and/or (b) store and produce energy originally generated from low or zero emission sources (*e.g.*, RPS eligible resources). In any event, to be eligible for the APS, a flywheel developer must demonstrate that the proposed project meets the overall APS emissions standards, inclusive of the emissions of the original generation source.

Paper-Derived Fuels

As for all APS technologies, the Department should structure the final regulations concerning paper-derived fuels in a way that ensures environmental benefits. To achieve this goal, ENE recommends limiting the qualification of paper-derived fuel technologies in a number of ways. First, APS credit should be assigned only to the electric output that comes from the paper portion of the fuel input. Thus, APS credits should be discounted by the extent to which non-paper materials (*e.g.*, plastics or fossil fuels) are used to generate electricity. The emergency regulations seem to restrict APS Alternative Generation Attributes to the portion of electric output that comes from the paper portion of the fuel; however, ENE believes that this should be clarified to eliminate the counting of easily recycled plastics, or any fossil fuel components. ENE notes that the proposed definition of "Paper-derived Fuel" allows for up to 15% of the energy content to be derived from fossil fuel derived sources. *See* 225 CMR 16.02. This percentage is too high. At a minimum, any APS Alternative Generation Attributes assigned to qualifying paper-derived fuels should be discounted based on the percentage of fuel content due to fossil fuel derived sources.

Second, the regulations should exclude virgin paper or easily recycled paper from APS eligibility because of the lower energy inputs associated with recycling and the need to encourage the displacement of virgin paper use.

Third, energy generated from paper-derived fuels must meet the overall emissions limits common to all technologies, including CO_2. CO_2 emissions should be considered neutral only if the source of the paper can be shown to come from sustainably managed forests. Under these circumstances, ENE believes that only a limited portion of the APS could be met through energy generated from paper-derived fuels.

Reporting

The Department will need to establish a set of reporting, monitoring and verification protocols and regulations to ensure that the APS promotes the development of clean alternative energy. Those protocols must also minimize the transaction costs of qualification and compliance. To

that end, the Department should build upon its experience with the RPS, while tailoring specific requirements to meet the unique needs of APS technologies. The Department must require and verify the emissions rates of CO_2 and other pollutants for all APS technologies. In addition, as described above, the Department must set standards that ensure each technology meets specific benchmarks unique to its circumstances. For those projects and applications that fail to meet reporting or performance requirements, there should be appropriate consequences, including disqualification of a project from the APS.

Conclusion

ENE appreciates the extremely open and accessible process The Department has taken to the development of these regulations. Massachusetts has a unique opportunity to shape the Alternative Energy Portfolio Standard in a way that benefits Massachusetts rate payers, protects our environment and climate, achieves superior environmental performance, and helps stimulate technological innovation of low-carbon energy sources. As set out above, ENE believes that the emergency regulations, with some modest changes, will help to achieve these important goals.

Again, ENE commends Governor Patrick, the Department, and the Executive Office of Energy and Environmental Affairs for its extraordinary leadership on clean energy and climate issues. We appreciate the opportunity to offer these comments.